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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

EATNP139US

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on September 20, 2007

Signature /Christine Gillroy/

Typed or printed name Christine Gillroy

Application Number

10/669,186

Filed

September 24, 2003

First Named Inventor

Victor M. Benveniste

Art Unit

2881

Examiner

David Vanore

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐

applicant/inventor.

/Thomas G. Eschweiler/

Signature

☐

assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

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September 20, 2007

Date

Registration number if acting under 37 CFR 1.34 _____

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐

*Total of _____ forms are submitted.

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Docket No. EATNP139US

02-IMP-037

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re **PATENT** application of:

Applicant: Benveniste
Serial No.: 10/669,186
For: ION BEAM SLIT EXTRACTION WITH MASS SEPARATION
Filing Date: September 24, 2003
Examiner: David Vanore
Art Unit: 2881

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Favorable reconsideration of the above-identified application is respectfully requested in view of the following amendments and remarks.

REMARKS

Claims 1-17 and 21-29 are pending and are all rejected. Reconsideration of this application in light of the below remarks is respectfully requested.

I. REJECTION OF CLAIMS 1, 2, 4-17 AND 21-29 UNDER 35 U.S.C. § 103(a)

Claims 1, 2, 4-17 and 21-29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Benveniste (USPN 5,554,857) in view of Davis (USPN 3,711,706) and Vahrenkamp (USPN 4,315,153). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Independent claim 1 provides a mass analyzer comprised of *a first permanent magnet and a second permanent magnet and **without electromagnets*** that generates a substantially uniform magnetic field **but not an electric field**. Similarly, independent claim 21 provides generating a magnetic field from only *a first permanent magnet and a second permanent magnet and not generating an electric field*. Likewise, independent claim 29 provides a mass analyzer comprised of *a first permanent magnet and a second permanent magnet* that generates a substantially uniform magnetic field *but not an electric field*.

It is respectfully submitted that claims 1, 21 and 29 are not obvious over the cited references, at least, because the suggested combination is not proper. For example, Benveniste teaches the use of electromagnets rather than permanent magnets. In particular, ***the electromagnets in Benveniste have coils and are specifically employed to provide flexibility that allows the magnetic field to be adjusted*** (See, e.g., Col. 2, lines 35-40; Col. 4, lines 24-27; Col. 5, line 54 – Col. 6, line 14). For example, the reference explicitly states:

The strength of both the quadrapole and dipole fields are adjusted by a controller electrically coupled to the primary and additional current carrying coils of said magnet.

A magnet constructed in accordance with the invention adds flexibility to the implanter. This flexibility allows the implanter to be used with different species ions at low energy implant levels. (Col. 2, lines 47-53).

Therefore Benveniste does not provide for permanent magnets as claimed, and instead provides teaching therein that highlights the importance of using an electromagnet for purposes of varying the magnetic field magnitude for tuning purposes.

Davis provides that a C-shaped magnet of a mass spectrometer may comprise a permanent magnet (Col. 2, lines 37-34). However, obviousness is not established by merely showing that claimed elements existed, independently, in the prior art. KSR v. Teleflex, 550 U.S. _____ (2007). One of ordinary skill in the art should be prompted to make the suggested combination, and when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious. KSR v. Teleflex, 550 U.S. _____ (2007).

It is respectfully submitted that the suggested combination is not proper at least because there is no apparent reason that would prompt one of ordinary skill in the art to make the combination. ***Moreover, modifying Benveniste as proffered in the Advisory Action to merely comprise the permanent magnets of Davis would render Benveniste unsuitable for its intended purpose (of adding flexibility – above), thus teaching away from the suggested combination.*** MPEP § 2143.01 (V) (citing In re Gordon, 733 F.2d 900 (Fed. Cir. 1984)(stating that when a modification would render the prior art being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.)

Further, while Davis does disclose that magnet 10 may be a permanent magnet, Davis acknowledges that a non-permanent (electromagnet) is preferred because it advantageously permits control of the magnetic field (Col. 2, lines 35-51). Thus, given Benveniste stated desire to provide flexibility and Davis' preference for using an electromagnet to provide this feature, it is respectfully submitted that the suggested combination is not proper at least because one of ordinary skill in the art would not be motivated to make the combination since Davis explicitly recognized the feature as not preferred, and because such a modification would render Benveniste unsuitable for its intended purpose.

Further in the Advisory Action it states that Vahrenkamp in particular supplies a motivation to utilize a permanent magnet in that it would reduce size and complexity. This point, however, fails to appreciate the teachings of Vahrenkamp *as a whole*. MPEP § 2143.01 (I) (*citing In re Fulton*, 391 F.3d 1195 (Fed. Cir. 2004))(stating that the proper inquiry is "whether there is something in the prior art as a whole to suggest... the obviousness of making the combination.")

Taken properly as a whole, Vahrenkamp does not provide the requisite motivation *because its primary functionality is not employed in Benveniste*. Benveniste employs coils that vary the current to alter a *magnetic field* strength to vary the tuning of the mass analyzer for differing species. Vahrenkamp varies the *electric field* in a ExB separator for tuning purposes. More particularly, Vahrenkamp teaches potential plates 24, 26, 28, 30 (Col. 3, lines 25-55); 64, 66, 68, 70 (Col. 4, line 50 – Col. 5, line 23); or 94, 96, 98, 100 (Col. 5, lines 30-35) of an ExB separator 20, 60 or 90, respectively, that can be biased to different voltages to develop *different electric fields to select a desired mass species* (Col. 3, lines 38-39). While Vahrenkamp does disclose that a permanent magnet structure may be included to provide a uniform magnetic field region (Col. 3, lines 6-19), *the ExB separator must employ an electric field for tuning the separator for different species*. In fact, Vahrenkamp specifically states that it is directed to the ExB separator for analyzing ion beams (Col. 1, lines 66-68). As such, one of ordinary skill in the art would not have been motivated to modify Benveniste with the teaching of Davis or Vahrenkamp when Vahrenkamp is properly evaluated as a whole. Therefore the combination of Benveniste with the secondary references is improper due to a lack of the requisite motivation. Consequently, claims 1, 21 and 29 are non-obvious over the cited art.

Rather, to the extent that one of ordinary skill in the art would have been motivated to modify Benveniste in view of Vahrenkamp, such a modification would most likely have been to add the potential plates to incorporate a variable electric field for further tuning flexibility. However, such a modification would not have rendered obvious the claimed invention because the claims specifically recite a mass analyzer that

generates a uniform magnetic field, ***but not an electric field***. Therefore the pending claims are non-obvious over the cited art.

It will be appreciated that the use of permanent magnets as provided in claims 1, 21 and 29 allows a substantially uniform magnetic field of adequate magnitude to be produced in a small region (not attainable with electromagnets), and that this field applies a specific uniform force in a desired direction across a ribbon ion beam. Given the demands of modern ion implanters that implement ribbon ion beams this can not practicably be accomplished without using permanent magnets because, among other things, the footprint of the implanter would become unreasonably large.

It is respectfully submitted, therefore, that independent claims 1, 21 and 29 are non-obvious over the cited art. The other above mentioned rejected claims depend from claims 1, 21 or 29 and thus are also non-obvious over the cited art.

Withdrawal of this rejection is therefore respectfully requested.

II. CONCLUSION

For at least the above reasons, the claims currently under consideration are believed to be in condition for allowance.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, EATNP139US.

Respectfully submitted,
ESCHWEILER & ASSOCIATES, LLC

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